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Raven Operator Assessment Tool

John J. Lipinski
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Fort Benning Research Unit

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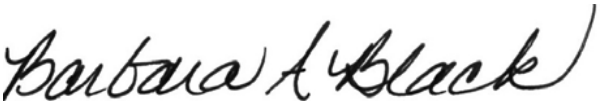

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The success of home-unit Raven programs and Raven operational employment depends on effective and efficient Master Trainers (MTs). To this end, the present work presents the development of a field-ready Raven operator assessment tool in a standard Trained-Needs Practice-Untrained (TPU) format. This tool enhances the ability of newly trained Raven MTs to accurately evaluate the Raven operators under their guidance. Evaluation by noncommissioned officers (NCOs) in the Raven MT course indicated near-uniform agreement that the items on the assessment tool were both clearly stated and relevant for the evaluation of Raven operators. More importantly, the vast majority of respondents also indicated that they would use the assessment tool at their home units as an aid for training development and evaluation.

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Raven Operator Assessment Tool

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RAVEN OPERATOR ASSESSMENT TOOL

EXECUTIVE SUMMARY

Research Requirement:

Small unmanned aviation systems (SUAS), such as the hand-launched Raven, are playing an ever-greater role in Infantry operations, providing organic intelligence, surveillance, and reconnaissance for company level and below. Although Raven operators are initially certified through institutional training, the acquired Raven operator skills are maintained and enhanced through home-unit Aircrew Training Programs (ATP). Critically, ATPs also serve to develop the skills and knowledge required for unit-specific Mission Essential Task Lists (METLs). The success of home-unit Raven programs and Raven operational employment more generally therefore depends on effective and efficient Master Trainers (MTs) overseeing the ATPs.

Despite the critical role MTs play in maintaining and enhancing Raven operator skills, shifting operational tempos and the importance of primary duty positions make it difficult for MTs to accumulate the experience and practical knowledge needed to effectively tailor home-unit Raven training to individual operator needs and skills. To enhance the ability of newly trained MTs to evaluate the Raven operators under their guidance, we developed a field-ready Raven operator assessment tool in a standard Trained-Needs Practice-Untrained (TPU) format.

Procedure:

The initial assessment tool was developed through direct observation of the Raven Operator and Raven MT courses conducted by the SUAS trainers at Fort Benning, GA. The assessment tool was then reviewed and discussed by a panel of experts (two noncommissioned officers (NCOs), five contractors) who teach the basic two-week operator course and the one-week MT course. Based on this feedback, the assessment tool was revised and then further reviewed and discussed by a second panel of different experts (four NCOs) all of whom teach the basic operator and MT courses. The final revision of the tool was conducted in accordance with suggested minor changes in wording. In the final phase, the assessment tool was formally validated by a total of twenty-three NCOs across three different operational units completing their Raven MT qualification training.

Findings:

Evaluation of the items addressing Crew Operations, Vehicle Operator skills, and Mission Operator skills by NCOs in the Raven MT course indicates near-uniform agreement that each item was both clearly stated and relevant for the evaluation of Raven operators. More importantly, the vast majority of respondents also indicated that they would use the assessment tool at their home units as an aid for training development and evaluation.

Utilization and Dissemination of Findings:

The assessment tool will help new Raven MTs evaluate and train Raven operators in their home-unit ATPs. It has been provided to the197th Infantry Brigade for dissemination to the Raven instructors and Raven MTs.

RAVEN OPERATOR ASSESSMENT TOOL

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Raven Operator Assessment Tool

Background

Small unmanned aviation systems (SUAS) are playing an ever-greater role in Infantry operations. One such system is the Raven, a hand-launched SUAS that provides organic intelligence, surveillance, and reconnaissance for company level and below. The Raven operator crew is composed of two members, the Vehicle Operator (VO) and the Mission Operator (MO). The VO is chiefly responsible for operating the vehicle from the ground control unit and avoiding air traffic and other obstacles. In contrast, the MO is primarily responsible for navigation, managing the radio, orienting the antenna, and otherwise aiding the VO as needed.

Raven operators typically receive formal training (for both the MO and VO duties) in either an institutional course at Fort Benning, GA or one offered at their home unit by a Mobile Training Team (MTT). Once Soldiers are certified as Raven operators, they then participate in a home-unit Aircrew Training Program (ATP). These programs, which are administered by institutionally trained Master Trainers (MTs), are intended to maintain the operators' acquired skills and proficiency throughout their current unit assignment. Critically, ATPs also serve to develop the skills and knowledge required for unit-specific Mission Essential Task Lists (METLs). ATPs are therefore the most targeted and most current training forums for Raven operators. Consequently, the success of home-unit Raven programs and Raven operational employment more generally depends on effective and efficient (MTs).

MTs must overcome a number of barriers including limited training time, constrained airspace, and operator skill decay to establish and maintain successful ATPs. While these challenges might be difficult to avoid, particularly in times of war, their ultimate impact on Raven operator performance likely depends in large part on the skill of the home-unit MT. Indeed, given the systematic institutional training required for all Raven MTs, it is reasonable to assume that the likelihood of success for a home-unit ATP increases as MTs improve their ability to identify operator strengths and weaknesses, tailoring their operator training accordingly.

While such MT skills likely improve with experience, shifting operational tempos and the emphasis placed on primary duty positions often prevent MTs from accumulating that experience. Thus, many ATPs are instead administered by somewhat inexperienced MTs who, while fundamentally capable, nonetheless lack the acumen and practical knowledge needed to effectively tailor Raven training to individual operator needs and skills. This inexperience points to the need for a practical supplementary training tool that helps new MTs consistently and efficiently evaluate Raven operator performance. By enhancing an MTs ability to evaluate the Raven operators under their guidance, such a tool would ultimately increase ATP effectiveness.

To this end, we developed a field-ready Raven operator assessment tool appropriate for use by newly trained MTs. The development of such tools is consistent with the recognition that the distillation of expert knowledge into practical jobs aid can substantially aid training effectiveness and Soldier skill development (Evans, Blizzard, Jones, & Ryan, 2011; James & Dyer, 2010; Katz & Grubb, 2003; Schultz & Wagner, 1981). The assessment tool developed here specifically emphasizes three broad aspects of a Raven mission: Crew Operations, Vehicle Operator skills, and Mission Operator skills. The variety of unit-specific METLs precludes a single tool from comprehensively addressing all unit-specific ATP needs. Nonetheless, because this tool focuses on fundamental rather than narrow skills, its applicability spans a range of unit-specific Raven missions. Thus, while this tool was specifically designed for the needs of new MTs, it can also aid the training efforts of more experienced MTs.

Method

Assessment Tool Construction

The assessment tool is the result of a multi-phase process. First, the core operator skills were identified through observations of the entire two-week institutional Raven operator course taught at Fort Benning, GA. Second, the tasks and responsibilities for Raven MTs were identified through observations of the entire five-day Raven Master Trainer course also taught at Fort Benning, GA. Both courses included formal classroom instruction as well as extensive hands-on training in the field. An extensive list of basic operator skills was then compiled based on observations from both courses. Next, each basic operator skill on this list was discussed with a senior SUAS trainer responsible for both Raven operator and Master Trainer instruction. The primary focus here was to confirm the accurate interpretation of the training observations and eliminate redundancies or ambiguities in the derived skills list. The list was then pared down to those skills identified by the senior instructor as essential for and generalizable across ATPs.

For consistency with established Army training and ease of field use, we applied the standard Trained-Needs Practice-Untrained (TPU) scoring format to each skill item on this final list (see Appendix A). In addition, each item was also placed under one of three category headings: Crew Operations, Vehicle Operator skills, Mission Operator skills. This form was then reviewed and discussed by a panel of experts (two noncommissioned officers (NCOs), five contractors) who currently teach the basic two-week operator course and the one-week Master Trainer course. Feedback provided during the discussion supported the overall utility of the assessment tool as well as the validity of its structure and core content. Suggested revisions focused chiefly on changes in wording for added clarity and consistency with current SUAS terminology.

Based on this feedback, the assessment tool was revised and then further reviewed and discussed by a second panel of different experts (four NCOs) all of whom currently teach the basic operator course and/or Master Trainer course. Feedback provided during the second discussion further supported the utility and validity of the assessment tool. The final revision of the tool was conducted in accordance with suggested minor changes in wording.

Validation Instrument Construction

The first three portions of the validation instrument (see Appendix B) were based directly on the three segments of the assessment tool, namely Crew Operations, Vehicle Operator skills, and Mission Operator skills. For each item on the assessment tool, respondents are asked if they thought the item was relevant for the evaluation of operators during training (“Relevant”) and whether the item was clearly written (“Clear”). These two aspects were emphasized because they are central to the acceptability of the instrument as a useful training aid for MTs.

After completing the questions for each assessment item, respondents were then asked to answer five questions assessing the instrument as a whole using one of six possible responses (from “Strongly Disagree” to “Strongly Agree”). Overall then, this validation method provided for the identification of particularly weak items, an informed basis for eliminating or modifying such items, an overall assessment of the instrument, and a means of determining the receptivity of new Raven MTs to incorporating the assessment tool into their instructional practices.

Participants

A total of twenty-three NCOs across three different operational units participated in the validation of the assessment tool. These NCOs were completing MT training conducted either at their home unit under the instruction of an MTT from Fort Benning or as part of institutional training provided at Fort Benning. Individuals completing their Raven MT training were regarded as the most appropriate sample for two reasons. First, there is typically only one Raven MT per home unit. Raven MTs are thus distributed across different units and wide geographical areas, making it difficult to solicit an evaluation from more than one MT at a time. Second, and more importantly, the assessment is largely intended to aid new rather than experienced MTs. Validating the assessment tool by the standards of new MTs therefore provides the most relevant basis for evaluation. All participants provided informed consent.

Procedure

The participants completed the evaluation form on the last day of their Raven MT training in a classroom setting. The NCOs were first presented a copy of the assessment tool (see Appendix A) to orient them to the topic of evaluation. After being providing an opportunity to read through the assessment tool items, they were then presented an evaluation packet that included the Privacy Act Statement, an informed consent document, and the validation instrument (see Appendix B).

Results

The presentation of the results parallels the structure of the evaluation form. Each item was evaluated individually using descriptive statistics. In some cases, participants did not evaluate all individual assessment tool items. The number of evaluations provided therefore differs slightly across items.

Crew Operations

Table 1 shows the percentage of "Yes" responses regarding the clarity and relevance of the three Crew Operation assessment items. The results uniformly indicate that each of the three items was both clearly stated and relevant for Raven operator evaluation.

Table 1.
Percentage of Agreement for Crew Operations Items

	Group Percentage		
Item	Relevant	Clear	*n*
Sets up site	100	100	21
Provides mission brief	100	100	21
Emphasizes Emergency Procedures[1]	100	100	21

Note. The items listed are abbreviated from their original form. See Appendix A for the complete wording.

Vehicle Operator

Table 2 presents the percentage of "Yes" responses regarding the clarity and relevance of the 13 Vehicle Operator assessment items. Similar to the Crew Operations responses, the results almost

[1] Emergency procedures refer to those numbered steps that must be performed immediately in an emergency (e.g., loss of communication with the aircraft). The operator should be able to carry out these steps automatically without reference to a checklist or manual. the aircraft). The operator should be able to carry out these steps automatically without reference to a checklist or manual.

uniformly indicate that each Vehicle Operator item was both clearly stated and relevant for Raven operator evaluation.

Table 2.
Percentage of Agreement for Vehicle Operator Items

	Group Percentage		
Item	Relevant	Clear	*n*
Uses correct buttons	100	100	23
Provides mission brief	100	95.7	23
Navigates menu options quickly	95.7	91.3	23
Sets up mission with hand controller	100	100	23
Navigates camera type quickly	100	100	23
Combines flight and camera operations	100	100	23
Uses range and bearing tool	95.7	100	23
Acquires time on target	100	100	23
Conducts linear track	100	100	22
Conducts route reconnaissance	100	95.5	22
Conducts linear track at night	100	95.5	22
Informs mission operator of developments	100	100	23
Emphasizes Emergency Procedures	100	100	23

Note. The items listed are abbreviated from their original form. See Appendix A for the complete wording.

Mission Operator

Table 3 shows the percentage of "Yes" responses regarding the clarity and relevance of the nine Mission Operator assessment items. Consistent with the previous sections, the results almost uniformly indicate that each Mission Operator item was both clearly stated and relevant for Raven operator evaluation.

Table 3.
Percentage of Agreement for Mission Operator Items

	Group Percentage		
Item	Relevant	Clear	*n*
Demonstrates map readings skills	100	100	23
Loads correct maps	91.3	100	23
Loads DTED[2] files	95.7	100	23
Uses drawing editor	100	95.7	23
Manually sets waypoints	100	100	23
Performs setup in sequence	100	95.7	23
Communicates intended target	100	100	23
Provides time to target information	100	100	23
Emphasizes Emergency Procedures	100	100	23

Note. The items listed are abbreviated from their original form. See Appendix A for the complete wording.

[2] DTED refers to the Digital Terrain Elevation Data used as part of the mission planning process.

Overall Utility

Although clarity and relevance are obviously central to the successful adoption of this assessment tool, it is important to also directly estimate how receptive newly trained Raven MTs will be to its use in the field. Intuitively, responses ranging from "Strongly Disagree" through "Slightly Agree" suggest a low likelihood of using the assessment tool for training and evaluation. To provide an appropriately stringent criterion for perceived utility and likelihood of use, we therefore aggregated the two strongest responses ("Agree" and "Strongly Agree") into a single category. The results of this aggregation (see Table 4) indicate that the vast majority of participants selected one of these two strong agreement options for each of the five items.

While this pattern is consistent with the previous clarity and relevance evaluations, it also suggests a greater degree of response variability. Further exploration indicates that the number of respondents selecting "Agree" for the five overall utility items (10, 9, 7, 10, and 8 respondents, respectively) was comparable to that selecting "Strongly Agree" (9, 10, 13, 9, and 10 respondents, respectively). In addition, analysis for the six response categories from 1 ("Strongly Disagree") to 6 ("Strongly Agree") scored individually for all participants yields a standard deviation of 1.3 for each of the five overall utility items. This indicates that the utility responses were less uniform than the relevance and clarity ratings. Collectively then, the probes of overall utility offer a somewhat less biased, more sensitive measure of the tool's true relevance and utility for home-unit training.

Table 4.
Percentage of Agreement for Overall Utility Items

Item	Group Percentage Agree or Strongly Agree	*n*
Generalizes to training missions at home unit	90.9	22
Would help carry out evaluations	90.9	22
Would help keep track of tasks to be tested	95.5	22
Would use tool as evaluation aid	90.9	22
Would use tool for training development	86.4	22

Note. The items listed are abbreviated from their original form. See Appendix A for the complete wording.

Conclusions

Consideration of home-unit training demands and the limited experience of newly trained Raven Master Trainers indicated a need to provide a practical, field-ready training aid to facilitate effective home-unit ATPs. The Raven operator assessment tool developed and evaluated here incorporates the overall structuring (Crew Operations, Vehicle Operator, and Mission Operator) and the specific elements identified as fundamental to successful Raven operations and training. While the uniformity of favorable responses may reflect an agreement response bias, it is important to note that most elements were treated extensively during the Raven MT course. The consistent relevance accorded to each of the items may therefore reasonably be attributed to instructional emphasis and not necessarily to biased response patterns. The foundational and straight-forward nature of the skills also generally supports their clear and direct description (e.g. "Provides crew mission brief", "Navigates menu options quickly"), making mere response bias an unlikely source of the favorable ratings. Evaluations of the assessment tool's overall utility were slightly more variable (suggesting greater sensitivity) but again strongly favorable.

The value of the Raven Master Trainer assessment tool ultimately depends on the willingness of Raven MTs to incorporate it into their ATPs. By focusing on the fundamentals of Raven operations, however, the present training aid should remain relevant as the Raven MTs become more experienced and hone their training skills. It may also be easily adapted for unit-specific requirements. In the case of urban environment operations, for example, a Vehicle Operator item assessing the ability to land within a fixed area (such as the top of a building) may easily be added. This assessment tool thus provides the basis for sound, consistent, and systematic tailored training as well as a framework for developing future evaluation tools focused on unit-specific METLs and Soldier-specific training needs.

References

Evans, K.L., Blizzard, J.J., Jones, J.E., & Ryan, W.C. (2011). *Evaluating a job aid for actions on contact at the Joint Readiness Training Center* (ARI Research Report 1946). Arlington, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (DTIC No. ADA545882).

James, D.R. & Dyer, J.L. (2010). *Rifle marksmanship diagnostic and training guide* (ARI Research Product 2011-07). Arlington, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (DTIC No. ADA544533).

Katz, L.C. & Grubb, G.N. (2003). *Enhancing U.S. Army aircrew coordination training* (ARI Special Report 56). Arlington, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (DTIC No. ADA415767).

Schultz, R. E., & Wagner, H. (1981). *Development of job aids for instructional systems development* (ARI Technical Report 527). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (DTIC No. ADA109815).

Acronyms

ATP	Aircrew Training Program
METL	Mission Essential Task List
MO	Mission Operator
MT	Master Trainer
MTT	Mobile Training Team
NCO	Noncommissioned Officer
SUAS	Small Unmanned Aviation System
TPU	Trained-Needs Practice-Untrained
VO	Vehicle Operator

Appendix A

Raven Operator Assessment Tool

Instructor/ Master Trainer_____ Date_____ Time_____
Mission Scenario_____ Location_____ Weather_____
Vehicle Operator_____
Mission Operator_____

Instructions: Check the box that most accurately describes each aspect of the operator's training mission performance. Please use the following code: **T= Trained**, **P= Needs Practice**, **U= Untrained**, and **N/A= Not applicable** for observed training mission. Use the "Additional Comments" section provided at the end of each portion to address additional performance aspects.
NOTE: This is a supplemental tool.

	Crew Operations	T	P	U	N/A
1	Sets up site properly (esp. site orientation to North)	☐	☐	☐	☐
2	Provides crew mission brief	☐	☐	☐	☐
3	Emphasizes EPs during crew mission brief	☐	☐	☐	☐
	Additional Comments:				

	Vehicle Operator	T	P	U	N/A
4	Uses the correct buttons during vehicle operation	☐	☐	☐	☐
5	Navigates menu options quickly	☐	☐	☐	☐
6	Sets up mission using hand controller	☐	☐	☐	☐
7	Navigates the camera type and zoom level menu(s) quickly	☐	☐	☐	☐
8	Combines flight and camera operations to acquire and maintain target.	☐	☐	☐	☐
9	Uses range and bearing tool and saves pictures using range and bearing tool	☐	☐	☐	☐
10	Acquires and maintains time on target	☐	☐	☐	☐
11	Conducts route reconnaissance and surveillance	☐	☐	☐	☐
12	Conducts linear track on a moving vehicle	☐	☐	☐	☐
13	Conducts route reconnaissance and surveillance during night flight	☐	☐	☐	☐
14	Conducts linear track on a moving vehicle during night flight	☐	☐	☐	☐
15	Informs mission operator of important developments during the mission (e.g., new areas of interest)	☐	☐	☐	☐
16	Emphasizes EPs during flight operations	☐	☐	☐	☐
	Additional Comments:				

	Mission Operator	T	P	U	N/A
17	Demonstrates required map reading skills for MO duties	☐	☐	☐	☐
18	Loads correct maps for areas of interest and correctly sets paths	☐	☐	☐	☐
19	Loads the required DTED files	☐	☐	☐	☐
20	Uses drawing editor tool for ROZs and corridors	☐	☐	☐	☐
21	Manually inputs and sets target waypoints under time constraints and stress (e.g., change in mission status, FRAGO)	☐	☐	☐	☐
22	Performs system set up in the correct sequence	☐	☐	☐	☐
23	Clearly communicates intended target to the VO	☐	☐	☐	☐
24	Provides information VO needs to calculate time to target (time and/ or distance to target) without prompting	☐	☐	☐	☐
25	Emphasizes EPs during flight operations	☐	☐	☐	☐
	Additional Comments:				

Appendix B

Validation Instrument

Directions: You have been given a Raven operator assessment tool. This training aid is intended for Raven Master Trainers who maintain an active Raven program at their home units and conduct unit-specific training. The following questions each address some aspect of this tool. The purpose of these questions is determine if this tool is valid and appropriate for use by Raven Master Trainers at their home units.

1) The Crew Operations assessment items are presented below. For each assessment item listed (1-3), please answer whether you think that item is (a) relevant for training evaluation and (b) clearly written. Circle "Yes" or "No" in the answer columns.

Assessment Items

Circle Answers Here

	Crew Operations	T	P	U	N/A	Relevant		Clear	
1	Sets up site properly (esp. site orientation to North)	☐	☐	☐	☐	Yes	No	Yes	No
2	Provides crew mission brief	☐	☐	☐	☐	Yes	No	Yes	No
3	Emphasizes EPs during crew mission brief	☐	☐	☐	☐	Yes	No	Yes	No

2) The Vehicle Operator assessment items are presented below. For each assessment item listed (4-16), please answer whether you think that item is (a) relevant for training evaluation and (b) clearly written. Circle "Yes" or "No" in the answer columns.

Assessment Items

Circle Answers Here

	Vehicle Operator	T	P	U	N/A	Relevant		Clear	
4	Uses the correct buttons during vehicle operation	☐	☐	☐	☐	Yes	No	Yes	No
5	Navigates menu options quickly	☐	☐	☐	☐	Yes	No	Yes	No
6	Sets up mission using hand controller	☐	☐	☐	☐	Yes	No	Yes	No
7	Navigates the camera type and zoom level menu(s) quickly	☐	☐	☐	☐	Yes	No	Yes	No
8	Combines flight and camera operations to acquire and maintain target.	☐	☐	☐	☐	Yes	No	Yes	No
9	Uses range and bearing tool and saves pictures using range and bearing tool	☐	☐	☐	☐	Yes	No	Yes	No
10	Acquires and maintains time on target	☐	☐	☐	☐	Yes	No	Yes	No
11	Conducts route reconnaissance and surveillance	☐	☐	☐	☐	Yes	No	Yes	No
12	Conducts linear track on a moving vehicle	☐	☐	☐	☐	Yes	No	Yes	No
13	Conducts route reconnaissance and surveillance during night flight	☐	☐	☐	☐	Yes	No	Yes	No
14	Conducts linear track on a moving vehicle during night flight	☐	☐	☐	☐	Yes	No	Yes	No
15	Informs mission operator of important developments during the mission (e.g., new areas of interest)	☐	☐	☐	☐	Yes	No	Yes	No
16	Emphasizes EPs during flight operations	☐	☐	☐	☐	Yes	No	Yes	No

3) The Mission Operator assessment items are presented below. For each assessment item listed (17-25), please answer whether you think that item is (a) relevant for training evaluation and (b) clearly written. Circle "Yes" or "No" in the answer columns.

Assessment Items

Circle Answers Here

	Mission Operator	T	P	U	N/A	Relevant	Clear
17	Demonstrates required map reading skills for MO duties	☐	☐	☐	☐	Yes No	Yes No
18	Loads correct maps for areas of interest and correctly sets paths	☐	☐	☐	☐	Yes No	Yes No
19	Loads the required DTED files	☐	☐	☐	☐	Yes No	Yes No
20	Uses drawing editor tool for ROZs and corridors	☐	☐	☐	☐	Yes No	Yes No
21	Manually inputs and sets target waypoints under time constraints and stress (e.g., change in mission status, FRAGO)	☐	☐	☐	☐	Yes No	Yes No
22	Performs system set up in the correct sequence	☐	☐	☐	☐	Yes No	Yes No
23	Clearly communicates intended target to the VO	☐	☐	☐	☐	Yes No	Yes No
24	Provides information VO needs to calculate time to target (time and/ or distance to target) without prompting	☐	☐	☐	☐	Yes No	Yes No
25	Emphasizes EPs during flight operations	☐	☐	☐	☐	Yes No	Yes No

4) This section asks for your opinion of the entire assessment tool— considering all sections together. Please place an "X" in the column that best describes how much you agree or disagree with each statement.

Statement	Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
The list of tasks in the assessment tool generalizes to the training missions I will run as an MT at my unit.						
This assessment tool would help me carry out evaluations at my unit.						
This assessment tool would help me keep track of the tasks to be tested during a training mission at my unit.						
I would use this assessment tool as an evaluation aid at my unit.						
I would use this assessment tool as the basis for developing training tailored to my unit METL.						

Thank you!